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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,463	07/30/2003	Frederic Cattaneo	16080-131	9169

7590 11/17/2004  
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EXAMINER

POKER, JENNIFER A

ART UNIT	PAPER NUMBER
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2832

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/630,463

Applicant(s)

CATTANEO, FREDERIC

Examiner

Jennifer A. Poker

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/525,999.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *General Status*

1. This is a third action on the merits of amendment received September 2, 2004 of application filed July 30, 2003. Additionally, the double patenting rejection of claims 4-7 is withdrawn. Claims 1-9 are pending and are being examined.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,480,088 to Okamoto in view of U.S. Patent Number 5,583,475 to Raholijaona, et al, and yet further in view of U.S. Patent Number 6,762,666 to Chu.

Regarding claim 1, Okamoto discloses a choke coil comprising:

- (1) coils wound around a toroidal magnetic core (because the coils are wound, they create a central cavity) (abstract; figure 1A);
- (2) a base plate/connecting plate located at one side of the core/coil; the base houses four terminals (figure 1A; column 4, lines 45-46);
- (3) a protection plate located on an opposite side of the base plate (abstract; figure 1A).

Okamoto discloses the claimed invention except for the insertion of the magnetic core.

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Raholijaona, et al, discloses a method of manufacturing a coil on a toroidal magnetic circuit; the method comprising a preformed tore-shaped coil, which is slipped over top a magnetic core. This method presents the advantage of permitting the manufacture of coils, which, for identical electrical properties, are of substantially smaller volume than coils obtained in the prior art. This is due to the fact that, in the prior art, the winding of the conductor wire around a torus produces a considerable tension of the wire which requires a very thick coating of protective varnish (grade 2 wires), whereas the method according to Raholijaona, et al, is carried out without torsion of the wire, so that wires having a very much thinner coating of varnish may be used (grade 1 wires).

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Okamoto with the teachings of Raholijaona, et al, and form a coil with a central cavity in order to slip a core there through. This method is beneficial for the purposes of reducing torsion of the wire/coil.

Okamoto in view of Raholijaona, et al, discloses the claimed invention except for stating the intended use of the magnetic core as a current sensor. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham 2 USPQ2d*.

Okamoto in view of Raholijaona, et al, disclose the claimed invention except for the use of an air-gap.

Chu discloses a toroidal core for a toroid including a gap that forms a break in one side of the body of the core. The gap avoids saturation of the core. (abstract)

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One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Okamoto, Raholijaona, et al, with the teachings of Chu, and incorporate an air-gap within the core in order to avoid saturation.

Regarding claim 9, Okamoto illustrates in figure 1A, that the base plate/connector plate contains holes through which ends of the wire/coil are positioned.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,480,088 to Okamoto in view of U.S. Patent Number 5,583,475 to Raholijaona, et al, yet further in view of U.S. Patent Number 6,762,666 to Chu, as applied to claim 1 above, and further in view of U.S. Patent Number 6,232,863 to Skinner, et al.

Okamoto in view of Raholijaona, et al, discloses the claimed invention except for the conical shaped coil.

Skinner, et al, discloses a conical winding surface, which tapers from a larger diameter end to a smaller diameter end. The smaller angled sides provide a stop that the wire engages to prevent the wire from slipping away from the conical end where the coil winding is initiated. Oppositely, the conical shape would allow easy removal of the coil.

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Okamoto in view of Raholijaona, et al, with the teachings of Skinner, et al, and incorporate a conical shaped winding or winding structure wherein one side has a smaller diameter to prevent the wire from slipping away from the conical end.

Regarding claim 3, Okamoto in view of Raholijaona, et al, and yet further in view of Skinner, et al, discloses the claimed invention except for the value  $\tan \alpha$  ranging between 0.001 and 0.01. It

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would have been obvious to one having ordinary skill in the art, at the time the invention was made, to utilize an appropriate value  $\tan \alpha$  in order to maintain optimum usage of the core/coil, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,480,088 to Okamoto in view of U.S. Patent Number 5,583,475 to Raholijaona, et al, and yet further in view of U.S. Patent Number 6,762,666 to Chu, as applied to claim 1 above, and further in view of U.S. Patent Number 4,408,639 to Hayama, et al.

Okamoto in view of Raholijaona, et al, discloses the claimed invention except for a guide portion on the end plate.

Hayama, et al, discloses a coil manufacturing apparatus, as seen in figure 7, comprising an end plate having coiling means which guides a filament wire for a coil while revolving around the mandrel wire to coil the filament wire around the mandrel wire.

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Okamoto, Raholijaona, et al, and Hayama, et al, and incorporate a guiding means at an end plate in order to help guide the winding of the coil.

### *Allowable Subject Matter*

6. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Contact Information*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Poker whose telephone number is 571-272-1997. The examiner can normally be reached on 4:30-3:00 Monday-Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jap  
November 15, 2004

  
LINCOLN DONOVAN  
PRIMARY EXAMINER  
GROUP 2100